INTERNATIONAL TECHNOLOGY &
ENGINEERING EDUCATORS ASSOCIATION

Engineering Technology Education Program of Study – EbD, Robotics Engineering & Automation – ITEEA & Intelitek

9th Grade TE-1905 Fundamentals of Engineering Technology

Fundamentals of Technology is a prerequisite course for most of the Technology Education systems. Communication skills and tools are the major focus of this course. These same skills are central to all subsequent technology courses. The computer and other electronic devices are necessary for teaching an understanding of contemporary communications, manufacturing, power/energy/transportation and construction systems. An engineering focus of problem solving requires students to define a given problem, conduct appropriate research, develop solutions to the problem, construct prototypes, and evaluate their work. This course is designed to introduce students to those principles and skills used in subsequent technology courses. Students learn to sketch solutions to problems, create technical drawings and presentations, build models, and apply creative problem solving methods. Emphasis is placed on accessing and communicating information, using simple and complex tools in a safe manner, and increasing the students' awareness of the historical and contemporary implications of technology. Students are introduced to computer-aided graphics, design software, and computer-aided manufacturing. Students develop an understanding of the tools, techniques, and processes of technology using design principles, computers, problem solving and model making.

10th Robotics Engineering

Prerequisite – Fundamentals of Engineering Technology

Course Overview

intelitek's Robotics Engineering and Automation™ program consists of two 36-week courses that deliver thorough and engaging STEM education. Built on the power of LearnMate™, intelitek's e-learning platform, Robotics Engineering & Automation™ delivers comprehensive, standards-based instruction via relevant activities and compelling online curriculum. Packaged for 20 to 30-student classrooms, Robotics Engineering & Automation™ EbD™ Robotics PathwayExtension™ will include comprehensive LearnMate curriculum backed by the LearnMate™ learning management system (LMS), easyC® programming software, Vex™ Robotics hardware.Course Length - 36 weeks

11th Robotics and Automation

Prerequisite – Robotics Engineering

Course Overview

Robotics Engineering & Automation provides a comprehensive study of engineering concepts including

- ..physics
- ..programming
- ..mechanical systems
- ..electrical and electronics systems
- ..relevant activities and capstone projects in each semester

These core concepts are delivered with a robotics emphasis through relevant activities and projects using the award winning Vex Robotics hardware and easyC® robotic programming software. By using robotics as a vehicle to convey the principles of engineering, Robotics Engineering & Automation generates excitement and enthusiasm for the engineering field! Course Length - 36 weeks

12th Grade Engineering Design

Prerequisite – Robotics & Automation

Course Overview

Engineering Design will offer students the opportunity to understand and apply knowledge and skills required to create and transform ideas and concepts into a product that satisfies specific customer requirements. Students will experience design engineering in the creation, synthesis, iteration, and presentation of design solutions. Students will coordinate and interact in authentic ways to produce the form, fit, and function documentation with appropriate models to completely define a product. This course will maintain a focus on how engineers apply their creativity, resourcefulness, mathematical, scientific, and technical knowledge and skills in the creation or refinement of technological products/systems. A key approach will be the employment of a sophisticated, sequential, and iterative design and development process to solve authentic engineering tasks/problems.

Students will be challenged to participate as members of engineering teams within a typical business organization. Independent and group work will be reflective of authentic engineering projects found in the designed world. Student performance within this structure will be assessed in numerous and diverse ways. It is important to note that measurement of student performance will be reflective of actual professional engineering evaluative processes currently used in this career field. Both independent and collaborative work will be carefully analyzed as students perform within an authentic engineering enterprise environment.

The following major ‘topics’ or ‘chapters’ will be included to organize instruction of appropriate standards and benchmarks and reflect contemporary engineering industry practices:

- Principles of Design
- Engineering Resources
- Engineering Design Process
- Project Management

Course Length - 36 weeks